



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,510	03/17/2004	Srinka Ghosh	10030936-1	5441

7590 04/26/2007
AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER	
FORMAN, BETTY J	
ART UNIT	PAPER NUMBER
1634	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/803,510	GHOSH ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06 February 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-11 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

FINAL ACTION

Status of the Claims

1. This action is in response to papers filed 6 February 2007 in which claims 1 and 4 were amended. The amendments have been thoroughly reviewed and entered. The previous rejections in the Office Action dated 6 November 2006, not reiterated below, are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed and are discussed below as they apply to the maintained rejections. New grounds for rejection, necessitated by the amendments, are discussed.

Claims 1-11 are under prosecution.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is indefinite because the claim is drawn to a reference pattern at one or more opposing diagonal corners of the microarray. The claim encompasses a single reference pattern. It is unclear how a single reference pattern can be in opposing corners i.e. in more than one location.

Response to Arguments

4. Applicant asserts that Claim 6 is drawn to at least one reference pattern, not a single reference pattern, and therefore is not indefinite or unclear. Applicant's comment is noted, however the claimed "at least one" encompasses one i.e. a single reference pattern. The claim recites, "the reference pattern is position at one or more opposing diagonal corners of the

Art Unit: 1634

microarray." It is maintained that the recitation is unclear because it is unclear how "the reference pattern" can be in opposing corners as claimed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kira et al (U.S. Patent No. 7,200,254, filed 5 September 2002).

Regarding Claim 1, Kira et al teach a microarray comprising a substrate, a number of features on the substrate and at least one reference pattern comprising a number of pattern blocks, each having positive control features (1c) and negative control features (1d), including nearest neighbor features around a central feature (Fig. 12, 18-23, Column 16, line 32-Column 17, line 67). The microarray of Kira et al differs from that claimed in the arrangement of the positive control features. However, looking at Fig. 18, nearest neighbor, negative controls 1d are arranged around a central feature (i.e. positive control 1c). Hence, the microarray of Kira merely differs from the claimed microarray in the arrangement of the elements.

The courts have stated that rearrangement of parts without modification of operation is matter of design choice.

In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the

particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Furthermore, the courts have stated that absent evidence to the contrary, a particular configuration of a known device is a matter of choice which would have been obvious to one skilled in the art. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) (The court held that the configuration of the claimed disposable plastic nursing container was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant.). Hence, absence evidence to the contrary, the claimed configuration having control features around a central feature would have been an obvious variation of the Kira microarray.

Regarding Claim 2, Kira et al teach the microarray wherein all possible arrangements of nearest neighbor to central feature is provided (e.g. Fig. 18 wherein all positions surrounding the central feature are filled with the negative controls.

Regarding Claim 3, Kira et al teach the reference pattern comprises a two-dimensional array of pattern blocks (e.g. Fig. 12).

Regarding Claim 4, Kira et al teach each central feature (1c) having four nearest neighbors (1d) but they are silent regarding hexagonal packing arrangement. However, as stated above, a change in configuration or arrangement of parts does not distinguish a device over a known device having a different configuration.

Regarding Claim 5, Kira et al teach the reference pattern is positioned at array corners (Fig. 18-20).

Regarding Claim 6, Kira et al teach the reference patterns positioned at opposing corners (e.g. Fig. 22).

Art Unit: 1634

7. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yakhini et al (EP 1162572, published 12 December 2001) in view of Kira et al (U.S. Patent No. 7,200,254, filed 5 Sept 2002).

Regarding Claim 1, Yakhini et al disclose a microarray comprising a substrate, a number of features comprising probe molecules, each feature located at a different position on the substrate (Abstract), and a reference pattern that comprises a number of pattern blocks comprising an arrangement of one or more nearest-neighbor positive control features around a central feature (e.g. background, 3102-3110 surrounding features 3112-3120, ¶ 67 and Fig. 31). Yakhini et al do not specifically teach that each pattern block has positive and negative control features. However, Kira et al teach a similar array comprising pattern blocks wherein each reference pattern block comprises both positive and negative controls positioned in one or more corners of the blocks or within the blocks (Column 16, line 58-Column 17, line 15). Kira et al further teach the reference patterns provide controls for hybridization analysis and block-by-block alignment (Column 16, lines 32-49). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the positive and negative controls of Kira et al to the microarrays of Yakhini et al. One of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success for the benefit of highly accurate automated alignment of the microarray during DNA analysis as taught by Kira et al (Abstract).

Regarding Claim 2, Yakhini et al teach the pattern includes each possible arrangement of nearest neighbor around a central positive control and negative control i.e. the background completely surrounds the central feature and the features comprise positive and/or negative controls (¶ 67).

Regarding Claim 3, Yakhini et al teach the pattern comprising a two-dimensional array of pattern blocks (Fig. 31).

Regarding Claim 4, Yakhini et al teach the array wherein the features are closely packed to provide six nearest neighbors surrounding a central feature (¶ 35).

Regarding Claim 5-6, Yakhini et al disclose the microarray wherein the reference pattern is positioned at a corner of the microarray (i.e. 3102/3112 are in the corner of a 3 x 3 pattern Fig. 31).

8. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yakhini et al (EP 1162572, published 12 December 2001) and/or Kira et al (U.S. Patent No. 7,200,254, filed 5 Sept 2002) as applied to Claim 1 above and further in view of Rothberg et al (U.S. Patent No. 6,355,423, issued 12 March 2002).

Regarding Claim 7, Kira et al and Yakhini et al are discussed above regarding the microarray of Claim 1. Kira et al and Yakhini et al do not specifically teach the microarray in a kit format. However, microarray kits were well known and routinely available at the time the claimed invention was made as demonstrated by Rothberg et al.

Rothberg et al teach a microarray similar to those of Kira and Yakhini comprising a substrate, a number of features comprising probe molecules, each feature located at a different position on the substrate (Abstract), and a reference pattern that comprises a number of pattern blocks (Fig. 5A) comprising an arrangement of one or more nearest-neighbor positive control features (Column 51, line 13-Column 52, line 60). Rothberg et al further disclose a kit comprising the microarray of Claim 1 (Column 10, line 54-Column 11, line 11).

Regarding Claim 8, Rothberg et al disclose a kit comprising a microarray wherein the microarray comprises features, each having a different oligonucleotide (Fig. 5a, Column 50, lines 15-56).

Regarding Claim 9, Rothberg et al disclose a kit comprising the microarray of Claim 1 and further comprising reference targets (Column 10, line 54-Column 11, line 11).

Regarding Claim 10, Rothberg et al disclose the kit comprises the microarray of Claim 1 and further teach the microarray comprises all possible oligonucleotides of a specific length (Column 50, lines 15-56). All possible sequences of a given length would provide for hybridization to all sequences on the array and thereby meet the structural limitations of the claim.

Regarding Claim 11, Rothberg et al further disclose the kit comprising instructions (Column 11, lines 6-10).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the microarrays of Kira and/or Yakhini by providing the microarray in kit format. One of ordinary skill in the art would have been motivated to do so for the convenience of providing components for using the microarray combined into a single package.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1634

Conclusion

10. No claim is allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.


BJ Forman, Ph.D.
Primary Examiner
Art Unit: 1634
April 24, 2007